# Dynamical and scaling characteristics of hourly averaged geomagnetic SYM-H data variation

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Fluctuation of geomagnetic SYM-H data for 1994-2006, including both quiet periods and periods with different magnetic storms including ones exceeding -400nT has been investigated.

Different approaches including a nonlinear recurrence quantitative analysis (RQA) was applied to hourly averaged SYM-H data. The SYM-H index is a geomagnetic index which essentially represents the Dst field with 1-min resolution. SYM-H time series have been extracted from data bases of Data Analysis Center for Geomagnetism and Space Magnetism, Graduate School of Science, Kyoto University, Kyoto, Japan

We find significant differences in nonlinear statistics of SYM-H variations for quiet and perturbed time periods. For quite time periods decrease of order in SYM-H variation was revealed. The order of SYM-H data variation increases when strong magnetic storms occur.

It is also important that distribution of magnetic storm minimums obeys power law.